UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,856	12/22/2000	Richard P. Modelski	P 270183 NOR-13175BA	8575

34845 7590 03/06/2007
McGUINNESS & MANARAS LLP
125 NAGOG PARK
ACTON, MA 01720

EXAMINER	
MOORE JR, MICHAEL J	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/741,856	MODELSKI ET AL.	
	Examiner	Art Unit	
	Michael J. Moore, Jr.	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,12-22,25-35,38 and 39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,12-22,25-35,38 and 39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/7/06 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims **1-9, 12-22, 25-35, 38, and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (U.S. 6,650,641) (hereinafter "Albert") in view of McRae (U.S. 6,970,462).

Regarding claim **1**, *Albert* teaches a forwarding agent that receives fixed affinities (single instructions) from a service manager that specify actions to be performed on particular packets having headers as spoken of on column 13, lines 19-29.

Albert also teaches step 1304 of Figure 13 where a forwarding agent finds an affinity that matches (filter result) an incoming packet as spoken of on column 29, lines 59-61.

Albert also teaches the source/destination IP address change, source/destination port change, and checksum adjustment actions (different filter operations performed on packet header fields) shown in steps 1310, 1312, 1314, 1316, and 1318 of Figure 13 that are performed in response to the affinity/packet matching (filter result) step 1304 as spoken of on column 30, lines 1-12.

Albert also teaches the sequential performing of these actions in Figure 13, and further teaches on column 30, lines 4-10, how these actions may be performed in a different order or how only a portion of these actions may be performed in some instances.

Albert does not teach performing at least two of a plurality of filter operations on the same data field in the data packet header, and where one field of the data packet header is processed in parallel with multiple filter operations.

However, *McRae* teaches a high-speed packet classification system where an incoming packet header of Figure 6 (having 32-bit IP source/destination address fields) is divided into 16-bit portions and where these portions (i.e. two 16-bit portions of IP source address field) are then subjected to a parallel lookup table construction process as shown in Figure 12 and spoken of on column 5, lines 24-47, column 5, lines 61-66, and column 9, lines 19-41.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the parallel processing of packet header data fields using filter rules as taught in *McRae* with the teachings of *Albert* in order to expedite the packet classification process as spoken of on column 9, lines 33-41 of *McRae*.

Regarding claims **2, 15, and 28,** *Albert* further teaches the forwarding (processing) of the packet in step 1320 of Figure 13 in response to the actions 1310, 1312, 1314, 1316, and 1318 (filter operations).

Regarding claims **3, 16, and 29,** *Albert* further teaches fixed affinity 600 shown in Figure 6 composed of key, flag, and address fields (set of data bits).

Regarding claims **4, 17, and 30,** *Albert* teaches fixed affinity 600 shown in Figure 6 composed of key, flag, and address fields (data bits). *Albert* does not explicitly teach a 32-bit instruction. However, at the time of the invention, it would have been obvious to one skilled in the art to use a fixed affinity 600 of *Albert* that contains 32 bits in order to provide a robust method of matching an affinity with an incoming packet and performing corresponding actions on the packet as spoken of on column 30, lines 1-12.

Regarding claims **5, 18, and 31,** *Albert* teaches source/destination IP address change, source/destination port change, and checksum adjustment actions (filter operations) shown in steps 1310, 1312, 1314, 1316, and 1318 of Figure 13 that are performed in response to the affinity/packet matching (filter result) step 1304 as spoken of on column 30, lines 1-12. *Albert* does not explicitly teach 32 filter operations. However, at the time of the invention, it would have been obvious to one skilled in the art to perform more filter operations than shown in Figure 13 of *Albert* in order to provide a more robust packet filtering process.

Regarding claims **6, 19, and 32,** *Albert* teaches fixed affinity 600 shown in Figure 6 composed of key, flag, and address fields (data bits). *Albert* does not explicitly teach a 64-bit instruction. However, at the time of the invention, it would have been obvious to one skilled in the art to use a fixed affinity 600 of *Albert* that contains 64 bits in order to provide a robust method of matching an affinity with an incoming packet and performing corresponding actions on the packet as spoken of on column 30, lines 1-12.

Regarding claims **7, 20, and 33,** *Albert* teaches source/destination IP address change, source/destination port change, and checksum adjustment actions (filter operations) shown in steps 1310, 1312, 1314, 1316, and 1318 of Figure 13 that are performed in response to the affinity/packet matching (filter result) step 1304 as spoken of on column 30, lines 1-12. *Albert* does not explicitly teach 64 filter operations. However, at the time of the invention, it would have been obvious to one skilled in the art to perform more filter operations than shown in Figure 13 of *Albert* in order to provide a more robust packet filtering process.

Regarding claims **8, 21, and 34,** *Albert* further teaches the forwarding (processing) of the packet in step 1320 of Figure 13 in response to the actions 1310, 1312, 1314, 1316, and 1318.

Regarding claims **9, 22, and 35,** *Albert* further teaches the IP packet 980 shown in Figure 9E.

Regarding claims **12, 25, and 38,** *Albert* further teaches step 1304 of Figure 13 where a forwarding agent finds an affinity that matches (filter result) an incoming packet as spoken of on column 29, lines 59-61.

Regarding claims **13, 26, and 39,** *Albert* further teaches step 1304 of Figure 13 where a forwarding agent finds (search) an affinity that matches (filter result) an incoming packet as spoken of on column 29, lines 59-61.

Regarding claim **14**, *Albert* teaches the forwarding agent 250 (apparatus) shown in Figure 2B.

Albert also teaches forwarding agent 250 containing memory 254 (See Figure 2B) that receives fixed affinities (single instructions) from a service manager that specify actions to be performed on particular packets having headers as spoken of on column 13, lines 19-29, as well as step 1304 of Figure 13 where a forwarding agent finds an affinity that matches (filter result) an incoming packet as spoken of on column 29, lines 59-61.

Albert also teaches forwarding agent 250 containing processor 252 coupled to memory 254 (See Figure 2B) that performs source/destination IP address change, source/destination port change, and checksum adjustment actions (different filter

operations performed on packet header fields) shown in steps 1310, 1312, 1314, 1316, and 1318 of Figure 13 in response to the affinity/packet matching (filter result) step 1304 as spoken of on column 30, lines 1-12.

Albert also teaches the sequential performing of these actions in Figure 13, and further teaches on column 30, lines 4-10, how these actions may be performed in a different order or how only a portion of these actions may be performed in some instances.

Albert does not teach performing at least two of a plurality of filter operations on the same data field in the data packet header, and where one field of the data packet header is processed in parallel with multiple filter operations.

However, *McRae* teaches a high-speed packet classification system where an incoming packet header of Figure 6 (having 32-bit IP source/destination address fields) is divided into 16-bit portions and where these portions (i.e. two 16-bit portions of IP source address field) are then subjected to a parallel lookup table construction process as shown in Figure 12 and spoken of on column 5, lines 24-47, column 5, lines 61-66, and column 9, lines 19-41.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the parallel processing of packet header data fields using filter rules as taught in *McRae* with the teachings of *Albert* in order to expedite the packet classification process as spoken of on column 9, lines 33-41 of *McRae*.

Regarding claim **27**, *Albert* teaches the method shown in Figure 13 performed by a forwarding agent 250 of Figure 2B containing memory 254 (computer readable medium).

Albert also teaches a forwarding agent (logic) that receives fixed affinities (single instructions) from a service manager that specify actions to be performed on particular packets having headers as spoken of on column 13, lines 19-29.

Albert also teaches step 1304 of Figure 13 where a forwarding agent (logic) finds an affinity that matches (filter result) an incoming packet as spoken of on column 29, lines 59-61.

Albert also teaches the source/destination IP address change, source/destination port change, and checksum adjustment actions (different filter operations performed on packet header fields) shown in steps 1310, 1312, 1314, 1316, and 1318 of Figure 13 that are performed in response to the affinity/packet matching (filter result) step 1304 as spoken of on column 30, lines 1-12.

Albert also teaches the sequential performing of these actions in Figure 13, and further teaches on column 30, lines 4-10, how these actions may be performed in a different order or how only a portion of these actions may be performed in some instances.

Albert does not teach performing at least two of a plurality of filter operations on the same data field in the data packet header, and where one field of the data packet header is processed in parallel with multiple filter operations.

However, *McRae* teaches a high-speed packet classification system where an incoming packet header of Figure 6 (having 32-bit IP source/destination address fields) is divided into 16-bit portions and where these portions (i.e. two 16-bit portions of IP source address field) are then subjected to a parallel lookup table construction process as shown in Figure 12 and spoken of on column 5, lines 24-47, column 5, lines 61-66, and column 9, lines 19-41.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the parallel processing of packet header data fields using filter rules as taught in *McRae* with the teachings of *Albert* in order to expedite the packet classification process as spoken of on column 9, lines 33-41 of *McRae*.

Response to Arguments

5. Applicant's arguments with respect to *amended* claims **1, 14, and 27** have been considered but are moot in view of the new ground(s) of rejection provided above.

Specifically, after further analysis of the *McRae* reference, it is shown in Figure 6 and spoken of on column 5, lines 61-66, how the incoming packet header (having 32-bit IP source/destination address fields) is divided such that the IP source address field and the IP destination address field each consist of two 16-bit fields.

It is also shown how each of these 16-bit portions are entered into separate lookup tables in a parallel fashion as spoken of on column 9, lines 19-41. It is held that the inputting of a first and a second portion of an IP address field (same data field) of a header into separate lookup tables (filter operations) in a parallel fashion constitutes

"performing at least two of a plurality of filter operations on the same data field in the data packet header in accordance with the retrieved filter result, whereby one field of the data packet header is processed in parallel with multiple filter operations" as provided above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571) 272-3168. The examiner can normally be reached on Monday-Friday (7:30am - 4:00pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-frêe). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

mjm MM

Michael J. Moore, Jr.
Examiner
Art Unit 2616

Seema S. Rao
SEEMA S. RAO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

3/1/07